

REMARKS

1. Initially, Applicant wishes to express his thanks to the Examiner for the courtesy and attention extended to Applicant and his counsel at the interview on September 14, 2005. As noted in the Interview Summary, the original claims, claims presented in a draft amendment, and the prior art cited in the Office Action of June 16, 2005, were discussed at some length.

2. One subject addressed at the interview was the meaning of certain terms, e.g., “shoulder”, “sidewall”, and “tread” used in the Applicant’s specification and claims. With this response, Applicant is submitting a Declaration of Marvin F. Bozarth, an expert in the tire industry (Exhibit I), and extracts from a number of web sites (Exhibit II, Items 1-5, pertinent to this subject.

3. The Examiner will note that this amendment substantially reduces the number of pending claims. After this amendment, there are only two pending independent claims, amended original claim 1 and new claim 58; and the only pending dependent claims are amended original claims 3-12 and new dependent claims 57 and 59 through 63. Original claims 2 and 13-56 have been cancelled. New dependent claim 57 is similar to original independent claim 13 but is rewritten in dependent form. New independent claim 58 and dependent claims 59-63 are supported by, e.g., the embodiment of Figure 3.

Terminology

4. As discussed in the Bozarth Declaration, the terms “shoulder”, “sidewall”, and “tread” have well-understood meanings in the tire industry, and the terms are used in Applicant’s specification, and in the references relied upon by the Examiner, in a manner consistent with these meanings. The Michelin tire shown in Exhibit B to the Bozarth Declaration illustrates these terms as commonly used. The “tread” (or “tread area”), “shoulder”, and “sidewall” of tires are also labeled (again in a manner consistent with the well-understood meanings”) in the drawings of items 1-4 of Exhibit II, and in the drawings of Applicant’s specification (tread portion 20, sidewalls 16, 18, shoulders 26, 28).

a. “Tread”

The word “tread” is used in two ways. Usually, it is used to refer to the radially outwardly facing tread surface; in a truck or automobile tire this is the surface formed by the

design elements (the tread and groove design) that are intended to engage the road. However, the word “tread” is also used to refer to the portion of the tire, typically molded as a unit, that is attached to the periphery of the tire carcass. In a truck or automobile tire, this molded unit typically includes both the design elements that form the tread surface that engages the road and also the design elements on what is conventionally referred to as the “shoulder.” (Bozarth Declaration, par. 3)

Consistently, Exhibit B shows the various elements that make up the tire, and says that the tread is the outermost part of the tire that contacts the pavement or ground (Item 1, pg. 2; item 3, pg. 1; item 4, page 3; item 5, page 4). Exhibit B also shows and discusses the various design elements that make up the tread pattern.

The Japan 403 reference cited by the Examiner refers to “tread 2” and uses reference numeral 2 to identify the outwardly facing tread surface.

In Applicant’s specification the “tread portion 20” is the part of the tire that toroidally extends between the sidewalls, and includes both the radially facing tread pattern and the axially opposed shoulders 26, 28. Figures 3 and 18 illustrate embodiments in which the design elements of the tread pattern define not only the radially-facing tread surface but also a radially inward side surface.

b. “Shoulder”

The word “shoulder” is commonly understood in the tire industry to refer to the region immediately below (radially inwardly from) the radially-outwardly-facing tread surface. In a truck or automobile tire, the “shoulder,” like the radially facing tread surface, typically contains design elements from the mold, typically ribs and grooves. (Bozarth Declaration, par. 4) The “shoulder”, thus, typically is the part of the overall tread pattern that forms the side (rather than the radially outwardly) facing surface of the tire.

“Shoulders” are shown and consistently labeled in Exhibit B (Item 1, pg. 1; item 3, pgs 1 and 3). Exhibit B also says that the “shoulder” is where the tread and sidewall join or meet (Item 4, pg. 2; item 5, pg. 4). Exhibit B shows that the “shoulder” typically forms the generally side facing surface of the overall tread pattern, and says that the shoulder provides contact with the road while maneuvering (Item 3, pg. 2) and that it may contain design features (Item 5, pg. 4; see Item 3, pgs. 1 and 3).

Japan 403 similarly says that the “shoulder” is the border between the sidewall and the tread.

Applicant’s specification shows, and consistently with the well-understood meaning one working in the tire industry would understand, that the shoulders 24, 26 are the portions of the tire at the opposite sides of the tread portion that form the generally side facing surfaces located between the radially outwardly facing surface of tread portion 20 and the sidewalls 16, 18.

c. “Sidewall”

The “sidewall” is generally understood to be the region, below the shoulder, where the design features from the mold end and the tire surface becomes smooth. (Bozarth Declaration, par. 5).

Again, this is clearly and consistently shown (Item 2, pg. 2) and described (Items 4, pg. 2 and 5, pg 5) in Exhibit B - the “sidewall” is the part of the tire between the edge of the tread pattern (i.e., the “shoulder”) and the bead.

Japan 403, again consistently, says that the “sidewalls” are the surfaces between the tread 2 and the bead 3.

Applicant’s specification similarly shows, and one in the tire industry would understand, that the “sidewalls” (designated 16, 18 in the drawings) are the portions of the tire between the respective bead portions 12, 14 and the respective shoulders 26, 28 of the tread portion 20.

Claims Rejections – 35 USC § 112

5. In the June Office Action, a number of claims, e.g., nos 11, 23, 34, 45 and 55 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In particular, the Examiner said that these claims contained the trademark/trade name Kevlar® and noted that “the trademark/tradename is used to identify/describe aromatic polyamide.

6. Claims 23, 34, 44 and 55 have been canceled. Claim 11 has been amended to recite that the low friction material comprises an aromatic polyamide material as noted by the Examiner instead of using the trademark/tradename Kevlar®.

Claims Rejections – 35 USC § 102

7. In the June Office Action, all pending claims were rejected under 35 U.S.C. § 102(b). Different groups of claims were rejected on the basis of different references, and we will address each rejection separately.

Japan 109 and 833

8. Claims 47, 48, 50 and 51 were rejected under 35 U.S.C. § 102(b) as anticipated by Japan 109 (JP 4-159109), and also as anticipated by Japan 833 (JP 4-71833). These claims have been canceled without prejudice.

Japan 177

9. Claims 1-4, 6, 8, 13-16, 18, 20, 25-27, 29, 31, 36-38, 40, 42, 47-48, 50 and 52 were rejected under 35 U.S.C. § 102(b) as anticipated by Japan 177 (JP 3-246177). Of these, Independent claim 1 and dependent claims 3-4, 6, 8 and 13 remain pending. This rejection should be reconsidered and withdrawn, and all now pending claims should be allowed.

10. In making the rejection, the Examiner said that “Japan 177 discloses a pneumatic tire having a tread, shoulders, sidewalls, bead portions and a friction reducing member at each shoulder”; and that the “friction reducing member” was Teflon sheets (Figure 11) or resin spikes (Figures 13 and 14).

11. As discussed at the interview, Japan 177 (JP 3-246177) discloses a vehicle, apparently for driving on what the reference refers to as “ungroomed terrain,” in which the rear drive is a rubber crawler belt mounted on a plurality of wheel tires. According to the reference, one problem with such crawler drives is friction between the side of the tires and the adjacent sides of the belt causes the tires to ride-up on the side-guides of the belt and separate from the belt. The reference purports to reduce this friction by providing “friction reducing members” between the tires and belt sides. As shown in, for example, Figure 11, Teflon sheets are bonded to the tire sides between what the reference calls the “tire taper face 53 and the garter taper face 54, and these “friction reducing members” reduce friction between the sides of the tires and the sides of the belt and the resulting tendency of the tires to ride up the sides of, and thus come off, the crawler belt.

12. As will be noted, the tires on the front steering wheels of the vehicle of Japan 177 are conventional, and contact the road or ground. The rear drive, however, is quite different. Its tires drive the crawler belt, but they contact only the inside of the belt and do not contact the

ground or any road surface. Rather, they are fitted inside of the continuous belt/track, and it is the outside surface of the belt/track, and not the tires, that engage the ground. Thus, Japan 177 does not disclose low friction material in a road-engaging tire, or low friction material that will engage the road in response to side surfaces exerted on the tire and reduce frictional forces between the tire and the road.

13. Unlike the Japan 177 reference, Applicant's invention is directed specifically to a road-engaging tire in which low friction material positioned, e.g., on the shoulder between the circumferentially outward facing tread surface and the tire sidewall (claim 1), or on the side of the ribs of the tread design (claim 58), will come into contact with the road surface when a vehicle makes a hard turn. In Applicant's tire, and quite unlike Japan 177, this low friction material will reduce frictional forces between the tire and road in these circumstances, and thus will reduce the chances that the vehicle will roll-over.

14. The present invention and the Japan 177 reference are thus directed to different solutions to different problems – i.e., the low friction material that will come into contact with the road during a hard turn and thus reduce the chance that a vehicle will tip over (Applicant's invention), and low friction material on the side of a tire that is positioned inside a crawler belt and never contacts the road to prevent the tire from riding up on and simply coming off the belt (Japan 177).

15. There is in the Japan 177 reference no teaching or suggestion of either the problem faced by Applicant – preventing rollover or oversteer of a vehicle when excessive side forces are applied to the road-engaging tire, or the Applicant's solution to that problem -- providing low friction material radially inward of the circumferentially outer road-engaging surface such that the low friction material contacts the road when the tire tread rolls and reduces sidewise frictional forces that could otherwise result in vehicle rollover.

16. At least for these reasons, the now pending claims are neither anticipated by nor obvious in view of the Japan 177 reference, and should be allowed.

Japan 403

17. Claims 1-3, 6, 13-15, 18, 25-26, 29, 36-37, 40, 47-48 and 50 were rejected under 35 U.S.C. § 102(b) as being anticipated by Japan 403 (JP 2-197403). Of these, independent

claim 1 and dependent claims 3-4, 6, 8 and 13 remain pending. This rejection should be reconsidered and withdrawn, and all now pending claims should be allowed.

18. Japan 403 (JP 2-197403) discloses the use of low friction material for decreasing excessive deformation of a tire, deformation (typically resulting from insufficient air pressure or an excessive load) which otherwise could cause the tire to separate from the rim. A band-shaped, low friction member is provided on the tire sidewall – radially inwardly of (and not on) the tread shoulder. As described in the “operation of the embodiment” in the Japan 403 reference, “under standard driving conditions, with the tire deformation that occurs when ... a sudden turn is made only the tread 2 and the border between the sidewall and the tread 2, which is known as the shoulder, contact the ground.” “[T]he low-friction member 8 [which is on the tire sidewall] does not contact the ground.” Thus, the Japan 403 reference specifically teaches that the tire shoulder does not include any low friction material in the tire sidewall.

19. Unlike the Japan 403 reference, which is directed to preventing separation overloaded or under inflated tires from the rim, the Applicant’s invention is directed to preventing vehicle rollover. Thus, rather than providing low friction material in the tire sidewall, Applicant’s invention provides such a material in the portion of the tire radially outwardly of the tire sidewalls, that (unlike the sidewalls) does contact the ground when a sudden turn is made. When a vehicle having Applicant’s tires makes a hard turn, e.g., oversteers, the low friction material often will come into contact with the road surface, and when it does, the low friction material on the tread shoulder will reduce the frictional forces between the tire and road, and thus reduce the chances that the vehicle will roll-over.

20. Because the present invention and the Japan 403 reference are directed to fundamentally different problems – i.e., preventing the a vehicle from tipping over when the shoulder of its tire rolls and comes into contact with the road, (Applicant’s invention) and preventing a tire from coming loose from a rim even “in such cases as when sudden turns are made when the air pressure in the tire is insufficient for the rating” (Japan 403), it is clear, and not surprising, that Japan 403 does not anticipate.

21. There is no teaching or suggestion in the Japan 403 reference of preventing rollover or oversteer of a vehicle, by providing low friction material -- not in the sidewall -- in the tire, but in the shoulder (claim 1) or on the side of the ribs of the tread design.

22. At least for these reasons, the now pending claims are neither anticipated by nor obvious in view of the Japan 403 reference, and should be allowed.

Claims Rejections – 35 USC § 103

23. As understood, all of the rejections under Section 103 rest on the Examiner's contention that Japan 177 and Japan 403 anticipate Applicant's claims. Since this is not so, the rejections under Section 103 should similarly be reconsidered and withdrawn.

24. Claims 5, 7, 17, 19, 28, 30, 39, 41, 49, and 51 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japan 177 in view of Japan 348 (JP 61-7348) or Japan 413 (JP63-218413). Of these, only claims 5 and 7 are now pending.

25. For the reasons stated before with respect to reference Japan 177, claims 5 and 7 are not obvious in view of the cited references, and should be allowed.

26. Claims 5, 9, 17, 21, 28, 32, 29, 43, 49, and 53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japan 177 in view of Costa Pereira et al (US 6,116,313). Of these, only claims 5 and 9 are now pending.

27. For the reasons stated before with respect to reference Japan 177, claims 5 and 9 are not obvious in view of the cited references, and should be allowed.

28. Claims 7, 10-12, 19, 22-24, 30, 33-35, 41, 44-46, 51 and 54-56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japan 177 in view of Muramatsu et al (US 5,540,489) and/or Bartkowiak (US 5,069,331). Of these, only claims 7 and 10-12 are now pending.

29. For the reasons stated before with respect to reference Japan 177, claims 7 and 10-12 are not obvious in view of the cited references, and should be allowed.

30. Claims 1-4, 6, 8, 13-16, 18, 20, 25-27, 29, 31, 36-38, 40, 42, 47-48, 50 and 52 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japan 403 and optionally at least one of Japan 177 and Matsumoto (US 6,102,094). Of these, only claims 1, 3, 4, 6, and 8 are now pending.

31. For the reasons stated before with respect to references Japan 403 and Japan 177, claims 1, 3, 4, 6, and 8 are not obvious in view of the cited references, and should be allowed.

32. Claims 5, 7, 17, 19, 28, 30, 39, 41, 49, and 51 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japan 403 and optionally at least one of Japan 177 and Matsumoto as applied above and further in view of Japan 348 (JP 61-7348) or Japan 413 (JP 63-218413). Of these, only claims 5 and 7 are now pending.

33. For the reasons stated before, with respect to references Japan 403 and Japan 177, claims 5 and 7 are not obvious in view of the cited references, and should be allowed.

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35. For the reasons stated before, with respect to references Japan 403 and Japan 177, claims 5 and 9 are not obvious in view of the cited references, and should be allowed.

36. Claims 7, 10-12, 19, 22-24, 30, 33-35, 41, 44-46, 51 and 54-56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japan 403 and optionally at least one of Japan 177 and Matsumoto as applied above and further in view of Muramatsu et al (US 5,540,489) and/or Bartkowiak (US 5,069,331). Of these, only claims 7 and 10-12 are now pending.

37. For the reasons stated before, with respect to references Japan 403 and Japan 177, claims 7 and 10-12 are not obvious in view of the cited references, and should be allowed.

Application No.: 10/694487

Docket No.: 0290527.00121US1

Amdt. dated: 11/11/05

Reply to Non-Final Office Action dated: 06/16/05

In view of the above amendment, Applicant submits that the pending application is in condition for allowance, and such action is respectfully solicited.

Please apply any charges not covered, or any credits, to Deposit Account No. 08-0219.

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Respectfully submitted,

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EXHIBIT INDEX

EXHIBIT I Declaration of Marvin F. Bozarth

- Exhibit A Resume of Marvin F. Bozarth
- Exhibit B English Translation of Japanese Patent Application No. 2-197403
- Exhibit C U.S. Patent Application No. 2005/0087276 A1
- Exhibit D Photograph of a Michelin tire illustrating terms "tread surface," "shoulder," and "sidewall"

EXHIBIT II Web Site Extracts

- Item 1 Tire Construction
- Item 2 Diagram: Tire Construction Nomenclature
- Item 3 Yokohama – Understanding Your Tires
- Item 4 Glossary of Tire Terms
- Item 5 Tire Terminology